



ChemTech

## International Journal of ChemTech Research

CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555  
Vol.10 No.7, pp 129-134, 2017

### Enzymatic Antioxidants Activity in Beta Thalassemia Major

Ani Melani Maskoen<sup>1</sup>, Nur Imaniati Sumantri<sup>2\*</sup>, Lelani Reniarti<sup>3</sup>

<sup>1</sup>Department of Oral Biology, Faculty of Dentistry, Universitas Padjadjaran, Bandung, Indonesia

<sup>2</sup>Master Program of Biotechnology, Post Graduate School, Universitas Padjadjaran, Bandung, Indonesia

<sup>3</sup>Department of Pediatric, Hasan Sadikin General Hospital, Bandung, Indonesia

**Abstract :** Thalassemia is genetic disorder caused by globin mutation that reduces synthesis of globin chains. Chronic anemia is main character of beta thalassemia major that in some occasions required multiple transfusion to overcome the low hemoglobin level. This repeated treatment results in iron overload that is responsible to catalyze the production of reactive oxygen species, ROS. Antioxidants prevent further impact of ROS, firstly by iron scavenging. Superoxide dismutase plays role as the first line defense, while glutathione peroxidase plays important role in erythrocyte defense. Catalase, thioredoxin and peroxiredoxin are also included in enzymatic antioxidant system against ROS in beta thalassemia major.

**Keywords :** Thalassemia major, multiple transfusion, iron overload, enzymatic antioxidant, oxidative stress.

Nur Imaniati Sumantri *et al* /International Journal of ChemTech Research, 2017,10(7):129-134.

\*\*\*\*\*